

We claim:

1. A transgenic plant containing an exogenous nucleic acid encoding an L3 protein.
2. The transgenic plant of claim 1 wherein said nucleic acid is derived from yeast.
3. The transgenic plant of claim 1 wherein said nucleic acid is derived from a higher
5 plant or an animal.
4. The transgenic plant of claim 1 wherein said nucleic acid is heterologous to said plant.
5. The transgenic plant of claim 1 wherein said nucleic acid is homologous to said plant.
- 10 6. The transgenic plant of claim 1 wherein the L3 protein encoded by said nucleic acid is a wild-type L3 protein.
7. The transgenic plant of claim 1 wherein the L3 protein encoded by said nucleic acid is a spontaneously occurring mutant of L3.
8. The transgenic plant of claim 7 wherein said spontaneously occurring mutant of L3 is tcm1.
9. The transgenic plant of claim 1 wherein the L3 protein encoded by said nucleic acid is a non-naturally occurring mutant of L3.
10. The transgenic plant of claim 9 wherein said non-naturally occurring mutant of L3 is rpl3-I282T.
11. The transgenic plant of claim 9 wherein said non-naturally occurring mutant of L3 is Mak8 (W255C, P257S).
12. The transgenic plant of claim 1 wherein said nucleic acid is a first exogenous nucleic acid and wherein said plant further comprises a second exogenous nucleic acid encoding a single chain ribosome inhibitory protein (RIP) that binds an endogenous
25 L3 protein.
13. The transgenic plant of claim 12 wherein the RIP encoded by said second nucleic acid is a PAP protein, PAP-v or a PAP II protein.
14. The transgenic plant of claim 1 that is a monocot plant.
15. The transgenic plant of claim 1 that is a dicot plant.
- 30 16. The transgenic plant of claim 1 that is a cereal crop plant.
17. A plant cell transformed with the nucleic acid of claim 1.
18. A protoplast transformed with the nucleic acid of claim 1.
19. Seed derived from the transgenic plant of claim 1.

20. A method of increasing resistance to viruses and/or fungi in a plant, comprising introducing the exogenous nucleic acid of claim 1 into the plant whereby said exogenous nucleic acid is expressed, wherein expression of said nucleic acid in said plant results in increased resistance to viruses and/or fungi relative to a wild-type plant.
21. A method of reducing toxicity of a single chain ribosome inhibitory protein (RIP) contained in a plant, comprising introducing the first and second exogenous nucleic acids of claim 12 into the plant thereby preparing a first transgenic plant, whereby said first and second nucleic acids are expressed in said first transgenic plant, wherein expression of said first nucleic acid in said transgenic plant results in reduced toxicity to the RIP produced by expression of said second nucleic acid relative to a second transgenic plant expressing said second exogenous nucleic acid but not said first exogenous nucleic acid.
22. A method of preparing a plant having increased resistance to viruses and/or fungi, comprising introducing the exogenous nucleic acid of claim 1 into a plant cell or protoplast to produce a transformed plant cell or protoplast, and regenerating a whole, transgenic plant from said transformed cell or protoplast, whereby said exogenous nucleic acid is expressed in said transgenic plant, wherein expression of said exogenous nucleic acid in said plant results in increased resistance to viruses and/or fungi relative to a wild-type plant.
23. A method of reducing toxicity to single chain ribosome inhibitory proteins (RIPs) in a plant, comprising introducing the first and second exogenous nucleic acids of claim 12 into a plant cell or protoplast to produce a transformed plant cell or protoplast, and regenerating a first transgenic plant from said transformed cell or protoplast, whereby said first and second nucleic acids are expressed in said first transgenic plant, wherein expression of said first nucleic acid in said first transgenic plant results in reduced toxicity to the RIP produced by expression of said second nucleic acid relative to a second transgenic plant expressing said second exogenous nucleic acid but not said first exogenous nucleic acid.
24. A method of reducing toxicity associated with single-chain ribosome inhibitory proteins (RIPs), comprising co-administering to a cell a single-chain RIP that binds an endogenous ribosome of the cell and an L3 protein.

25. The method of claim 24 wherein said cell contains a first exogenous nucleic acid encoding the RIP and a second exogenous nucleic acid encoding the L3 protein.
26. The method of claim 25 wherein said cell is a bacterium.
27. The method of claim 24 wherein said L3 protein is a non-naturally occurring mutant of L3 protein that (a) substantially fails to bind single chain ribosome inhibitory proteins that bind endogenous L3 proteins, (b) is unable to maintain M1 killer virus, (c) promotes altered programmed ribosomal frameshift efficiency, (d) exhibits resistance to peptidyltransferase inhibitors and combinations of any of (a)-(d).
28. A nucleic acid encoding a non-naturally occurring mutant of L3 protein that (a) substantially fails to bind single chain ribosome inhibitory proteins that bind endogenous L3 proteins, (b) is unable to maintain M1 killer virus, (c) promotes altered programmed ribosomal frameshift efficiency, (d) exhibits resistance to peptidyltransferase inhibitors and combinations of any of (a)-(d).
29. A cell transformed with the nucleic acid of claim 28.
30. The cell of claim 29 which is a bacterium or a yeast cell.
31. The cell of claim 29 which is the bacterium *E. coli*.
32. A non-naturally occurring mutant of L3 protein that (a) substantially fails to bind single chain ribosome inhibitory proteins that bind endogenous L3 proteins, (b) is substantially unable to maintain M1 killer virus, (c) promotes altered programmed ribosomal frameshift efficiency, (d) exhibits resistance of peptidyltransferase inhibitors and combinations of any of (a)-(d).
33. The L3 mutant of claim 32 which is rpl3-I282T
34. The L3 mutant of claim 32 which is Mak8 (W255C, P257S).
35. A composition comprising the non-naturally occurring mutant of L3 of claim 32 and a carrier.